

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Wolf Bertling et al. Art Unit : Unknown
Serial No. : Examiner : Unknown
Filed :
Title : METHOD FOR DETECTING AND QUANTIFYING FIRST BIOPOLYMERS
THAT ARE LOCATED IN A LIQUID

Assistant Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as follows:

In the Specification:

Please add the following paragraph to the application after the title:

--CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a National Stage application under 35 U.S.C. §371 and claims benefit under 35 U.S.C. §119(a) of International Application No. PCT/DE00/02757 having an International Filing Date of August 12, 2000, which claims benefit of DE 199 40 647.2 filed on August 26, 1999.--

Please delete the paragraph on page 2, lines 13-15.

In the Claims:

Please amend claims 1-4 and 7-13 as indicated below. Please cancel claim 14. A full set of pending claims is shown for convenience.

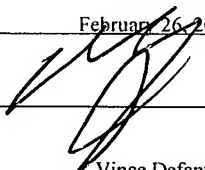
1. (Amended) A method for detecting and quantifying first biopolymers (1) that are located in a liquid, where second biopolymers (2) which have a specific affinity to the first

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Vince Defante
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biopolymers (1) to be detected are bonded to the surface of a first electrode (E1), and where the first and at least one second electrode (E2) are in contact with the liquid, said method having the following steps:

contacting the liquid with the first electrode (E1),
applying a voltage and/or current across the first electrode (E1) and the second electrode (E2), and
measuring a direct change in the voltage and/or current caused by addition of the first biopolymers (1) onto the second biopolymers (2).

2. (Amended) A method as claimed in claim 1, where a direct-voltage signal is measured.

3. (Amended) A method as claimed in claim 2, where the measuring is a cyclovoltammetric measuring.

4. (Amended) A method as claimed in claim 1, further comprising plotting the measured current or the measured voltage against time and integrating at least one peak.

5. A method as claimed in claim 1, where an alternating-current signal is measured phase-sensitively.

6. A method as claimed in claim 5, where the alternating-current signal is superimposed on a cyclic direct-current signal.

7. (Amended) A method as claimed in claim 1, further comprising measuring impedance by measuring voltammetric signals at varying frequency.

8. (Amended) A method as claimed in claim 1, further comprising increasing the concentration of the first biopolymers (1) at the surface of the first electrode (E1) by application of a voltage and/or current prior to contacting the liquid with the first electrode (E1).

9. (Amended) A method as claimed in claim 8, where polarity is reversed cyclically.

10. (Amended) A method as claimed in claim 8, where the measuring is performed in a defined measurement solution.

11. (Amended) A method as claimed in claim 1, where a first end of the second biopolymer (2) is bonded to the surface of the first electrode (E1) via a covalent bond or via a linker.

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12. (Amended) A method as claimed in claim 11, where the first electrode (E1) is made of plastic, ceramic, glass or metal.

13. (Amended) A method as claimed in claim 1, where the first biopolymer (1) is a single-stranded DNA or RNA which is complementary to the second biopolymer (2).

In the Abstract:

Please add the attached Abstract to the application after the claims.

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REMARKS

Applicants respectfully request entry of the amendments and remarks submitted herein. Claims 1-4 and 7-13 have been amended, and claim 14 has been canceled. Claims 1-13 are currently pending. Attached is a marked-up version of the changes being made by the current amendments. Examination of the pending application is respectfully requested.

In addition, Applicants have amended the specification to include a paragraph describing related applications and to claim the benefit of priority to such applications. Applicants also have amended the specification to remove the paragraph on page 2 that refers to claim numbers, and to add an Abstract. The attached Abstract is the English language Abstract that was published with the PCT application. Therefore, Applicants submit that there is no new matter introduced by these amendments.

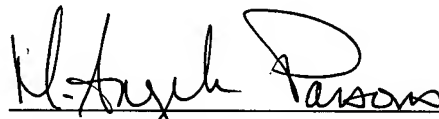
CONCLUSION

Applicants ask that claims 1-13 be examined. The enclosed filing fee takes into account the claims pending following entry of this Preliminary Amendment. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date:

February 26, 2002



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